Claims:

1. A method for monitoring cell voltages for a plurality of electrochemical cells connected in series forming a cell stack, the method comprising:

a) dividing the plurality of electrochemical cells into at least two cell groups;

b) determining an average cell stack voltage V_{sa};

c) measuring a cell group voltage V_g for each cell group;

d) estimating a minimum cell voltage V_{mi} for each cell group to obtain a set of minimum cell voltages; and,

e) determining a minimum cell voltage V_{min} for the cell stack by finding the minimum value in the set of minimum cell voltages.

2. A method as claimed in claim 1, wherein the minimum cell voltage for one of the cell groups is estimated according to $V_{mi} = \frac{V_g}{M} - \frac{(N-M)*V_{ss}}{M}$ where N is a number of cells in the cell group, and M is an estimated number of cells operating below the average cell stack voltage.

3. A method as claimed in claim 2, wherein the method further comprises:

f) activating an alarm when the minimum cell voltage V_{min} for the cell stack is equal to or less than a first threshold value.

4. A method as claimed in claim 2, wherein the method further comprises:

f) shutting down the cell stack when the minimum cell voltage V_{min} for the cell stack is equal to or less than a second threshold value.

5. A method as claimed in claim 2, wherein the number of cells N in the cell group is 4.

6. A method as claimed in claim 2, wherein the estimated number of cells M operating below the average cell stack voltage is 1.

7. A method as claimed in claim 3, wherein the first threshold value is 0.5 V.

8. A method as claimed in claim 4, wherein the second threshold value is 0.3 V.

9. A voltage monitoring system for monitoring cell voltages for a plurality of electrochemical cells connected in series forming a cell stack, the plurality of cell groups being divided into at least two cell groups, the voltage monitoring system comprising:

a) a voltage measuring unit for measuring a cell group voltage V_g for each cell group, and cell a stack voltage V_s for the cell stack; and,

b) a processing means connected to the voltage measuring unit for calculating an average cell stack voltage V_{sa}, estimating a cell group minimum cell voltage V_{mi} for each cell group to obtain a set of minimum cell voltages, and determining a minimum cell voltage V_{min} for the cell stack by finding the minimum value in the set of minimum cell voltages.

10. A voltage monitoring system as claimed in claim 9, wherein the processing means estimates the minimum cell voltage for one of the cell groups according to $V_{mi} = \frac{V_g}{M} - \frac{(N-M)*V_{ss}}{M}$ where N is a number of cells in the cell group, and M is an estimated number of cells operating below the average cell stack voltage.

11. A voltage monitoring system as claimed in claim 10, wherein the processing means activates an alarm when the minimum cell voltage V_{min} for the cell stack is equal to or less than a first threshold value.

12. A voltage monitoring system as claimed in claim 10, wherein the processing means shuts down the cell stack when the minimum cell voltage V_{min} for the cell stack is equal to or less than a second threshold value.

13. A voltage monitoring system as claimed in claim 10, wherein the number of cells N in the cell group is 4.

14. A voltage monitoring system as claimed in claim 10, wherein the estimated number of cells M operating below the average cell stack voltage is 1.

15. A voltage monitoring system as claimed in claim 11, wherein the first threshold value is 0.5 V.

16. A voltage monitoring system as claimed in claim 12, wherein the second threshold value is 0.3 V.

17. A method for monitoring cell voltages for a plurality of electrochemical cells connected in series forming a cell stack, the method comprising:

a) dividing the plurality of electrochemical cells into at least two cell groups;

b) determining an average cell stack voltage V_{sa};

c) measuring a cell group voltage V_g for one of the cell groups;

d) estimating a minimum cell voltage V_{mi} for the one of the cell groups;

e) comparing the minimum cell voltage V_{mi} to a threshold value; and,

f) repeating steps c, d and e until one of the minimum cell voltages V_{mi} is less than or equal to the threshold value or the minimum cell voltage for each of the cell groups has been estimated.

18. A method as claimed in claim 17, wherein minimum cell voltage for one of the cell groups is estimated according to $V_{mi} = \frac{V_g}{M} - \frac{(N-M)*V_{ss}}{M}$ where N is a number of cells in the cell group, and M is an estimated number of cells operating below the average cell stack voltage.

19. A method as claimed in claim 17, wherein the method further comprises:

g) activating an alarm when the minimum cell voltage V_{min} for the cell stack is equal to or less than the threshold value.

20. A method as claimed in claim 17, wherein the method further comprises:

g) shutting down the cell stack when the minimum cell voltage V_{min} for the cell stack is equal to or less than the threshold value.

21. A method as claimed in claim 18, wherein the number of cells N in the cell group is 4.

22. A method as claimed in claim 18, wherein the estimated number of cells M operating below the average cell stack voltage is 1.

23. A method as claimed in claim 19, wherein the threshold value is 0.5 V.

24. A method as claimed in claim 20, wherein the threshold value is 0.3 V.

25. A voltage monitoring system for monitoring cell voltages for a plurality of electrochemical cells connected in series forming a cell stack, the plurality of cell groups being divided into at least two cell groups, the voltage monitoring system comprising:

a) a voltage measuring unit for measuring a cell group voltage V_g for each cell group, and cell a stack voltage V_s for the cell stack; and,

b) a processing means connected to the voltage measuring unit for calculating an average cell stack voltage V_{sa}, repeatedly estimating a cell group minimum cell voltage V_{mi} for one of the cell groups and comparing the minimum cell voltage V_{mi} to a threshold value until one of the minimum cell voltages V_{mi} is less than or equal to the threshold value or the minimum cell voltage V_{mi} for each of the cell groups has been estimated.

26. A voltage monitoring system as claimed in claim 25, wherein the processing means estimates the minimum cell voltage for one of the cell groups according to $V_{mi} = \frac{V_g}{M} - \frac{(N-M)*V_{ss}}{M}$ where N is a number of cells in the cell group, and M is an estimated number of cells operating below the average cell stack voltage.

27. A voltage monitoring system as claimed in claim 25, wherein the processing means activates an alarm when the minimum cell voltage V_{min} for the cell stack is equal to or less than the threshold value.

28. A voltage monitoring system as claimed in claim 25, wherein the processing means shuts down the cell stack when the minimum cell voltage V_{min} for the cell stack is equal to or less than the threshold value.

29. A voltage monitoring system as claimed in claim 26, wherein the number of cells N in the cell group is 4.

30. A voltage monitoring system as claimed in claim 26, wherein the estimated number of cells M operating below the average cell stack voltage is 1.

31. A voltage monitoring system as claimed in claim 27, wherein the threshold value is 0.5 V.

32. A voltage monitoring system as claimed in claim 28, wherein the threshold value is 0.3 V.